The Moon Essay, Research Paper

The moon

The moon is the only natural satellite of Earth. The moon orbits the Earth from 384,400 km and has an average speed of 3700 km per hour. It has a diameter of 3476 km, which is about ? that of the Earth and has a mass of 7.35e22 kg. The moon is the second brightest object in the sky after the sun.

The gravitational forces between the Earth and the moon cause some interesting effects; tides are the most obvious. The moon has no atmosphere, but there is evidence by the United States Department of Defense Clementine spacecraft shows that there maybe water ice in some deep craters near the moon’s North and South Pole that are permanently shaded. Most of the moon’s surface is covered with regolith, which is a mixture of fine dust and rocky debris produced by meteor impact. There are two types of terrain on the moon. One is the heavily cratered and very old highlands. The other is the relatively smooth and younger craters that were flooded with molten lava.

Throughout the 19th and 20th centuries, visual exploration through powerful telescopes has yielded a fairly comprehensive picture of the visible side of the moon. The hitherto unseen far side of the moon was first revealed to the world in October 1959 through photographs made by the Soviet Lunik III spacecraft. These photographs showed that the far side of the moon is similar to the near side except that large lunar maria are absent. Craters are now known to cover the entire moon, ranging in size from huge, ringed maria to those of microscopic size. The entire moon has about 3 trillion craters larger than about 1 m in diameter.

The moon shows different phases as it moves along its orbit around the earth. Half the moon is always in sunlight, just as half the earth has day while the other half has night. The phases of the moon depend on how much of the sunlit half can be seen at any one time. In the new moon, the face is completely in shadow. About a week later, the moon is in first quarter, resembling a half-circle; another week later, the full moon shows its fully lighted surface; a week afterward, in its last quarter, the moon appears as a half-circle again. The entire cycle is repeated each lunar month, which is approximately 29.5 days. The moon is full when it is farther away from the sun than the earth; it is new when it is closer. When it is more than half-illuminated, it is said to be in gibbous phase. The moon is waning when it progresses from full to new, and waxing as it proceeds again to full. Temperatures on its surface are extreme, ranging from a maximum of 127? C (261? F) at lunar noon to a minimum of -173? C (-279? F) just before lunar dawn.

The Harvest moon is full moon at harvest time in the North Temperate Zone, or more exactly, the full moon occurring just before the autumnal equinox on about September 23. During this season the moon rises at a point opposite to the sun, or close to the exact eastern point of the horizon. Moreover, the moon rises only a few minutes later each night, affording on several successive evenings an attractive moonrise close to sunset time and strong moonlight almost all night if the sky is not clouded. The continuance of the moonlight after sunset is useful to farmers in northern latitudes, who are then harvesting their crops. The full moon following the harvest moon, which exhibits the same phenomena in a lesser degree, is called the hunter’s moon. A similar phenomenon to the harvest moon is observed in southern latitudes at the spring equinox on about March 21.